

# Quality of Care and Utilization Assessment

## *The Hospital Response to PSRO*

WOODBURY PERKINS, MD, *San Diego*

GROWING PRESSURES from a variety of directions to determine the quality and cost of care delivered in hospitals have provoked almost uniform resentment. This response by physicians and hospital administrators stems from rules and regulations imposed by outside sources, especially by the federal or state governments. In addition, the current demands for quality assessment pose many basic issues for the medical staff concerning approaches to assessing quality of care and proper utilization of facilities which are different than traditional methods.

This article offers examples of medical staff quality assessment activity which have been locally designed and conducted voluntarily. Similar programming to document effective peer review can be effected in any hospital to preserve local independence by fulfilling PSRO requirements. The article is designed to assist the medical staff of any hospital by offering answers to some of the most commonly asked questions, such as:

- What is the matter with the traditional committee approach (use of the credentials committee, tissue committee, supervisory committee and the like) to assessing quality of hospital care?—"We have been doing this for years; why do we now have to do medical audit?"

- Which audit approach is best, the American Hospital Association's Quality Assurance Program (QAP), the Joint Commission on Accreditation's Trustees, Administrators and Physicians workshops (TAP), or the CMA-CHA Medical Audit Programs?

- Who is to define quality? How can one measure or tabulate the quality of anything (quality being a matter of subjective value judgment)? Is this "cookbook" medicine?

- What is the relationship between costs of care and quality?

### **Traditional Method and Newer Approaches**

To answer the first question, there is nothing the matter with the existing hospital committee approach, and it must continue. The traditional hospital committees function as a peer review mechanism. Individual physician performance is examined. The credentials committee is essential for approving and reappointing individual members of the medical staff. The tissue committee is helpful in identifying errors and needless surgical operations. Supervisory committees are necessary for the development of departmental rules and regulations, and for maintaining departmental member discipline. These are essential functions to maintain. However, focusing on individual per-

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Reprint requests to: W. Perkins, MD, 4077 Fifth Avenue, San Diego, CA 92103.

formance may overlook deficiencies of institutional or group attitudes and performance. The purpose of medical audit is to focus on group performance by reviewing a disease or procedure topic. While focusing on group performance, some of the activities of many hospital committees can be merged, sparing time and effort of the medical staff. This has been demonstrated by Robinson.<sup>1</sup> The medical audit approach does not replace a one-on-one peer review method of assuring quality of hospital care; what it does do is augment and supplement the assurance by an evaluation of institutional performance. When local group or institutional needs for improving quality of care are identified, remedial action is initiated locally. In short, medical audit prevents losing sight of the forest for the trees.

### **Different Approaches to Audit**

Concerning the different medical audit approaches proposed by QAP, TAP, CMA-CHA, and others,<sup>2</sup> to assessing the quality of patient care, there are only minor procedural differences. All are patterned after concepts developed by Clement Brown<sup>3</sup> which measure performance against pre-selected criteria linking identified needs to continuing education programming. Originally QAP was basically a process-oriented method; TAP focuses more on a screening mechanism of chart review with attention to outcomes; the CMA-CHA procedure includes elements of both process and outcome but, in addition, features an institutional commitment by broad participation and ratification by the staff.<sup>4</sup> Any of these methods are acceptable to the Joint Commission, to the CMA or to a PSRO as a program for quality assurance. An essential element of the audit approach, often overlooked by those expressing the most resentment, is the value of local medical staff review activity rather than adopting standards recommended from outside sources. Linked to the process of evaluating the quality of care rendered is an organized continuing education process designed to remedy identified deficiencies. In essence, the primary objective presumes that local assessment of quality of care and utilization of facilities will make unnecessary outside rules and regulations, and will assure the best for the patient.

### **What Is Quality and How Is It Measured**

Defining quality is probably the most difficult phase for a hospital audit committee which is

assigned the task of assessing quality of care. All physicians know what quality is, but the difficulty arises in trying to develop standards of institutional care which are realistic, attainable, and flexible in relation to the many variable factors inherent in the management of human beings with disease or illness. Another difficulty in establishing quality standards is the variation of individual physician experience and bias.<sup>5</sup> In order to develop appropriate standards of quality, the current method advocates the use of explicit criteria.

Explicit criteria are those which are maximally objective and designed by the group. In contrast, implicit criteria are those frequently used in traditional committee work based upon the individual reviewer's opinion, feelings and judgment concerning issues of quality or utilization while reviewing a single chart. Developing explicit criteria is hard work and time-consuming. Required is defining the purpose and scope of a disease or topic review and then developing objective standards of optimal care which are both realistic and measurable. For example, a Medical Audit Committee set about to determine the frequency of unrecognized hypertension among patients admitted to the hospital for another primary cause. First, the committee argued at length as to what constituted hypertension. Some said a diastolic pressure of 90 mm of mercury, others said a diastolic of 100 mm and so on. Someone raised the point that a patient 85 years old might be expected to have elevation of the diastolic pressure yet obviously not be in trouble with hypertension. Next, they argued about who was going to take the blood pressure. Was a nurse assistant's recording as valid as physician's recording? And, how often did the patient have to have recorded elevation of blood pressure for it to be considered significant? Then a problem arose as to what is "unrecognized" hypertension. Did that mean the doctor neglected to make specific mention of the blood pressure on the progress sheet, or that an antihypertensive medication was not ordered, or that specific laboratory studies directed at identifying the source of hypertension were not recorded?

These various issues, concerning the purpose of the review and a definition of expected optimal performance, were finally resolved after several meetings of the committee. The committee designed a review to look at two hundred sequential discharges from the medical and surgical services of patients between the ages of 20 and 60 without a primary or secondary diagnosis of hypertension.

To do this, they tabulated on a data-gathering worksheet any record of diastolic pressure of 100 mm of mercury or higher, recorded on two or more occasions by two or more observers. To settle the question of whether or not hypertension, by these criteria, was "unrecognized," the committee made up a short list of antihypertensive drugs and specific hypertension related laboratory studies which should be included on the chart or mentioned on the progress record, to indicate that hypertension was recognized. Having spelled out these details, the committee then reviewed quickly, with the aid of the record room, defined sequential discharges of patients from the medical and surgical services who had been admitted for unrelated medical or surgical reasons.

What the committee had done, before the review, was to take several important steps. It had stated the objectives of the study and had framed the scope of the study in realistic terms. The focus was on the recorded action or performance of a group to determine whether or not anything had been done about hypertension, and it had defined for performance evaluation a set of expected quality standards which were measurable. There was no emphasis on nor concern with individual physicians' performance.

The value of this approach is that when a group participates in establishing the definition of quality of care for themselves with their own hospital population, then they will act as a group in response to deficiencies detected and will take appropriate action without any outside pressure. When this is done locally, it avoids the "cookbook" approach to medical practice, and it also avoids computerized national norms or other published norms which, in effect, threaten individuality and independence. In addition, such local hospital activity is compatible with PSRO requirements and accordingly, helps alleviate the frustrations.

### **Cookbook Medicine and Local Values**

Concerning "cookbooks" and computers, lists of criteria for quality performance in a variety of diseases are available from several sources. One such computerized design for assessing acute myocardial infarction is tempting, though of questionable value for its stated purpose. It contains 42 data elements to be extracted from the records for measuring the quality of care in this disease. Forty-one of the elements are process-oriented and only one, length of stay, is outcome-oriented.

The process questions to be recorded largely revolve about elements of the patient's history and physical examination recorded on the chart, and elements of care rendered, such as frequency of blood pressure monitoring and whether or not fluid intake and output were measured. All of these are significant elements of data to be contained in the hospital record of a patient with acute myocardial infarction. However, despite all the data put forth on computer print-outs, the results give only passing relevance to the quality of care because no action-related values are associated with the elements of data extracted. Presumably, the patient received good care if all 41 of the process elements were recorded as "yes." But what if only 30 or 35 of the elements had been recorded "yes"? Did the patient get good care or didn't he? All data must be interpreted by a person and a value judgment attached. The computer cannot do that.

A more effective approach is to identify the relevant elements of data in relation to the objectives of the study and to establish a value judgment concerning the elements before recording the data. Information gathered concerns only those few selected measurable elements and is compared to the preset values. For example, as to acute myocardial infarction in the computerized program mentioned, the data would have much more meaning if a single outcomes element, say mortality rate, were determined. There are enough available data to set up a standard that the mortality rate for patients with acute myocardial infarction in the modern hospital should be between 15 and 20 percent. If a hospital reviews its own experience and finds the mortality rate for acute myocardial infarction to be 25 or 30 percent, then there is cause for it to review its own process of care to find an explanation. The outcomes element referred to—length of stay—is irrelevant to the quality of care, unless possibly it focuses on short stay practices.

### **Relating Costs of Care with Quality**

What about proper utilization of the hospital facilities stressed in P.L. 92-603? This is a cost containment element, and the current yardstick is length of stay. Does length of stay really reflect proper utilization, and is this really an effective cost control mechanism in dollars saved? Since 1965, for purposes of reimbursement, hospitals have had utilization review committees which, in the main, have focused on reducing the length of

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TABLE 1.—*Length of Stay Data*

	1970	1971	1972	1973
Total discharges				
(med-surg) . . . . .	18,367	18,621	18,880	19,603
Total transfers to convalescent home				
(med-surg) . . . . .	920	945	1,005	890
Average length of stay (in days)				
(med-surg) . . . . .	7.5	7.0	7.2	7.1
Occupancy (med-surg)				
(percent) . . . . .	87.04	85.57	84.99	83.52
Average daily room charge (med-surg) .	\$59.79	\$65.93	\$70.63	\$75.93

TABLE 2.—*Cerebral Vascular Diseases, Medical Service Annual Review H-ICDA No. 435 April Through September*

	1969	1970	1971	1972	1973
Total patients					
H-ICDA 430-438 . .	214	178	164	179	182
TIA, H-ICDA 435 .	6.54%	15%	22%	19%	28%

stay. Attention to pre-admission screening may become an additional task. From the point of view of the hospital administrator with an occupancy rate of 50 or 60 percent or lower, the per diem rate will have to go up as occupancy falls, or he will have to restrict services (and thus quality), or he has to generate operational funds from some other source. The United States is already overbedded, according to the AHA, and most of the metropolitan areas in California have an excess of beds today.

In one 500-bed acute care hospital, with an active and conscientious utilization review committee whose members laboriously pore over hundreds of charts every month with a focus on length of stay, Table 1 demonstrates what has happened in terms of medical-surgical adult patients over a four-year period.

There was a modest increase in the number of admissions as expressed by discharges. The number of patients transferred to convalescent homes was not significantly changed over the four-year period. The average length of stay dropped from 7.5 to 7.0 days between 1970 and 1971, but after 1971 remained essentially unchanged. In spite of the increased number of patients in the hospital, the occupancy percentage dropped slightly in each of these years (14 beds were added to the hospital facility in 1973). Despite the labors of the utilization review committee, the per diem room rate steadily rose because of multiple indirect economic factors with which everyone is familiar.

Linking utilization review with attention to quality of care can be a more relevant effort. One hospital, in an effort to assess the quality of care for a common admission to the medical service, decided through its audit committee to do a pattern-of-care review of the disease entity "stroke." Many hospitals pick this disease entity to review, as it is a frequent cause for admission. But stroke is a somewhat difficult disease to audit because the diagnosis is often vague and because the diagnostic nomenclature contains "wastebaskets." Specifically, there are nine subclassifications of cerebrovascular disease, H-ICDA 430 through 438. The audit committee discovered this problem early on and, accordingly, decided to limit its review to the transient cerebral ischemic attack (TIA), H-ICDA 435. Here, at least, was one cerebrovascular disorder about which possibly something could be done. In 1969, the committee set up its criteria for good management of the patient with TIA and began to measure what was going on. It has continued to measure the same diagnosis ever since, and Table 2 shows what has happened.

The number of patients distributed among the nine H-ICDA diagnostic categories for cerebrovascular disease during a consecutive six month period in 1969 was 214. Of this group, TIA was diagnosed in 6.54 percent. The committee was concerned with this low percentage of specific diagnosis and suspected that patients with this potentially correctable disorder might be misdiagnosed into one of the other vague categories, such as acute ill-defined cerebrovascular disease or general ischemic cerebrovascular disease. Educational programming was constructed relative to the signs and symptoms of TIA in an effort to develop more precision in the diagnosis of a potentially correctable defect.

Since 1969 there has been a fairly constant number of patients discharged from the medical service with a "stroke" category diagnosis. Important to note is that the hospital structure did not change during these years. There were the same facilities for angiography in 1969 as in 1973, and there was no new neurologist, neurosurgeon or vascular surgeon on the physician staff. The variables did not change. In addition to these medical discharges, the number of patients with the same diagnosis discharged from the surgical service (not shown on Table 2) increased, indicating more surgical therapy.

As the diagnosis was made more frequently, the number of angiograms, brain scans, and neck

operations increased. The hospital facilities were much better utilized in 1973 in this regard than they were in 1969, but the cost of medical care rose because of the increased number of procedures. However, the quality of care was presumably better for this disease in 1973 than it was in 1969. To document quality rather than cost containment reduces frustration over threatened regulations.

On the other hand, costs need not always go up. Linking utilization and quality of care with resulting reduction of costs yet improvement in quality of care, was demonstrated by a pediatric audit committee looking at the use of mist tents in children. In 1971 there were 167 children discharged with a diagnosis of respiratory tract disease which included pneumonia, bronchitis, asthma and upper respiratory tract infection. Sixty-seven of these children, or 40 percent, were placed in a mist tent for an average of two days per patient. The pediatric audit committee developed criteria for proper use of a mist tent and then set about to find out what they were doing in relation to their criteria. What they found out about themselves was disturbing. For example, of the 67 children, 33 had oxygen piped into the tent without an order by the physician. Someone had plugged the intake tube into the wall oxygen socket rather than the room air socket. This explained why the majority of children were cold and had recorded rectal temperatures below 98°F. In comparing their actual performance with their criteria for use of a tent, they found that only 36 patient days out of 134 patient days were clinically justified. This fact was further disturbing because the average charge per patient for the tent was \$66.80. Simply by taking a look at what they were doing in relation to their own optimal care criteria, the pediatric department voluntarily reduced the indiscriminate and inappropriate use of mist tents. Consequently, there was better utilization of equipment, patient charges were saved and the quality of care was improved.

The experience cited demonstrates the value of more appropriate attention to utilization than a superficial cost-saving, length-of-stay focus.

#### **Patterns of Care Review; Medical Audit; Continuing Education**

A pattern-of-care review differs from medical audit in that it gives an overview of activity without specific orientation to quality. A pattern-of-

care review may reveal a gross deficiency such as a high mortality rate, or the use of antibiotics inconsistent with sensitivity studies. Such findings indicate a need for a detailed examination of the problem to identify the reasons for the deficiency. Results of a pattern-of-care review are frequently interesting to the staff, but in general do not contain a call for remedial action.

Medical audit, on the other hand, is the process of measuring existing performance against present criteria for excellence, utilizing a level of acceptable performance as an indicator of the need for corrective action.

A pattern-of-care review can be likened to taking a test in mathematics ranging from simple arithmetic to calculus, in which the answer to each question is marked *right* or *wrong* but no passing grade for the test is established. Implicitly, the person taking the test will know what he got right or what he got wrong when the test is scored. Medical audit, on the other hand, limits the scope of the test, announces ahead of time what the passing grade will be, and designs appropriate remedial action if the test is "flunked."

A pattern-of-care review is often a helpful way to develop medical audit in order to identify deficiencies in quality of patient care. For example, a medical department audit committee conducted a pattern-of-care review in 1970 for acute myocardial infarction in order to develop a data base for future audit. In a review of 251 patients with a confirmed discharge diagnosis during a nine-month period in 1970, two items of information caught the attention of the committee. First, 70 percent of the patients were monitored and 30 percent were not. Second, the death rates for those monitored and those not monitored appeared to be essentially the same—21.4 percent for the monitored group and 24.3 percent for the group not monitored. The staff felt that the mortality rates were too high, and in addition some members felt the results indicated the monitoring unit was inefficient and useless because of the similarity of death rates between the two groups. Others argued that only the sicker patients were monitored. The information pointed up the fact that no one really knew what was going on. It was decided to do a more detailed review of all deaths with focus on the day of death, where in the hospital the death occurred, and the physiologic cause of death. This revealed that half of the patients in the monitored group died after discharge from the monitored unit while receiving general floor care.

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TABLE 3.—*Acute Myocardial Infarction, January Through September*

	1970	1972
Total number of patients .....	251	214
Under 66 years of age .....	48%	48.3%
Males .....	60%	59%
Length of stay (survivors) .....	(days) 16.7	(days) 17.8
Percent patients monitored .....	70%	87%
Percent patients non-monitored .....	30%	13%
Survivors .....	195	183
Deaths .....	56=22.30%	31=14.40%
Death rate of non-monitored .....	18=24.32%	6=21.43%
Death rate of monitored .....	38=21.40%	25=13.44%
Death after discharge from monitoring ..	17 of 38=44.70%	3 of 25=12%

TABLE 4.—*1974 Criteria for Acute Myocardial Infarction*

	Expected Compliance (percent)
<i>Diagnostic accuracy</i>	
At least two	
Classical EKG changes .....	100
Specific enzymes rise .....	
Classical clinical history .....	
Monitoring unit .....	85-90
<i>Mortality rates</i>	
a. All patients, all ages, not to exceed ....	20
b. Monitored patients, age 75 & under ....	<15
c. Non-monitored patients, age 75 & under ....	20
d. Preventable cause of death .....	< 5

Some of these deaths were expected, but seven of the 38 deaths were sudden and unexpected. These deaths were reviewed by a panel of cardiologists and considered to be due to late arrhythmia (autopsy was done in five of the seven cases). This evaluation posed serious question as to whether these patients had been discharged from monitoring too early. Another possibility was inadequate attention to the patient on general floor care. Detailed review suggested the latter. The data were reported by the medical audit committee to the medical supervisory committee with recommendation that when a patient was discharged from a monitored unit to general floor care his chart should be clearly flagged. Accordingly, a sticker was devised, *previously monitored* in red, which was placed on each chart and on the card index at the nurses' station. Other recommendations made by the audit committee to the medical supervisory committee were that closer to 90 percent of patients with acute myocardial infarction should be monitored in the hope of reducing the mortality rate, and that in-service educational programming be structured for general floor care personnel.

A repeat performance review was then conducted for the same time span in 1972. Table 3

shows a comparison of results. Data on age group, sex and length of stay were essentially the same in 1972 as in the 1970 study. However, the mortality rate for all patients, irrespective of age, had dropped from 22.3 percent to 14.4 percent. The proportion of patients monitored had risen from 70 percent in 1970 to 87 percent in 1972. And the death rate for patients who were monitored had dropped from 21 percent to 13 percent. Finally, the number of late deaths of previously monitored patients had dropped to three, only one of which, on review by the cardiologists, was considered preventable (late arrhythmia); the other two patients were in their late 80's and had had protracted congestive heart failure.

These data suggest an improved quality of patient care brought about through locally designed and conducted patient care review with corrective action directed at identified institutional needs. Furthermore, remedial action was conducted by educational techniques which resulted in procedural changes without threatening any physician, revealing any identities, or taking any punitive action.

The same group has now designed its review program for 1974. Having a data base established in the review of 1970 and 1972 now permits an outcomes-oriented set of criteria for good care in cases of acute myocardial infarction, as shown in Table 4. The only element in the process of care being recorded is whether or not the patient is monitored. The significant element in the measurement of quality of care will be an outcomes element, mortality rate. Presumably, if the mortality rates match the 1972 statistics, or are even better, then the process of care must be acceptable. This simplified set of outcome-oriented criteria, with expected compliance figures, stands in contrast to the previously mentioned computerized program for measuring quality of care for the same disease with 41 process elements plus

one outcome element, length of stay—data which when pooled has questionable relationship to a quality judgment.

### Conclusions

It seems certain that programming to assess quality of care in conjunction with assessing appropriate utilization of hospital facility is a current trend which will continue for several years in response to pressures from a variety of sources.

While the traditional mechanisms for peer review of individual performance are still essential, they should be augmented by the medical audit approach for determining group or institutional performance. Answers have been offered to commonly asked questions about methods of determining quality of care in the hospital setting.

When individual peer review and medical audit are implemented in a single hospital, utilizing

locally developed standards for quality of care, an effective alternative is provided to externally imposed regulations.

By developing relevant, explicit criteria and defining the details of a review, any medical staff can conduct patient care assessment and assure quality of care by continuing educational programming.

Elements of appropriate utilization of hospital facilities, in addition to length of stay review, can be incorporated into a medical audit program in quality of care assessment.

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